



SAHYADRI – ‘WESTERN GHATS’ :
AN OVERVIEW OF PRIVATE OWNERSHIP, COMMERCIAL DEVELOPMENT
AND ITS IMPACT ON ECOSYSTEM

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*We do not inherit the land from our ancestors; we borrow it from our children.
– Chief Seattle.*



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SUMMARY

This is a brief report about private ownership and commercial development in Western Ghats. based on our experience in Ecological assessments of various lands, Restoration work done, & general observations in Northern WG, with, local communities, forests, land use, ecosystems & biodiversity, private land owners, developers & township development since 2001.

Report tries to identify problems caused by developmental activities like private schemes like farm houses, resorts, townships and hill stations. Damages originating from various activities from small to very large scale are acute and often site specific. Mitigation or compensatory measures for environmental impacts are often inadequate. Considering ecological fragility and global importance of WGs there has to be a “conservation approach” for any development in hills.

After enumerating problems of development on, various landscape elements and biodiversity, and lifestyle of villagers and urban people - in past and present, an effort of developing conservation guidelines for various categories is done.

Comments on few legal frameworks are given at the end, which shows that existing framework is not enough to protect this fragile ecosystem.

It is to be noted that this is brief acquaintance with the problems and solutions for WGs. A very detailed study needs to be done to know the effect of development on ecosystems and its long term negative impacts. Guidelines given in the report are also indicative. There has to be a site specific study and planning effort for any kind of project.

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SAHYADRI 'WESTERN GHATS' – AS A LANDSCAPE & BIODIVERSITY HOTSPOT

General Landscape & ecosystem



Koyna backwater & Stream in Dapsar, Panshet

- High rainfall & higher elevations give rise to special climate & ecosystem. Average elevation about 1200 m.
- Major soil producing area, on which agriculture & life of people along the rivers across deccan plateau depend.
- Catchment area of major river systems. Major supply of nutrients to rivers & oceans.
- It is very important to protect forests at the origin of rivers, where they act as sponge to absorb maximum rainfall. This becomes very significant in current situation of uncertain rainfall & water shortages.
- The area supports semi-evergreen forests. Biodiversity value of the area is very high & includes rare, uncommon & endemic species.
- Diversity of plants include trees, shrubs, climbers, grasses, algae, fungi etc. forming a delicate web that supports variety of insects, birds, butterflies, reptiles, mammals, etc.
- Act as sink for carbon dioxide & supply of oxygen. So globally important as 'carbon sink' and controlling temperatures in current crisis of Global warming & climate change.
- Specialized climate, landscape & ecosystems



Undisturbed areas : Rich in Biodiversity



Mahabaleshwar & Koyna Backwaters

Found in isolated patches in,

- National Parks – Sanctuaries – Reserved forests – Protected areas
- Sacred Groves
- Inaccessible areas – Mountain tops, Gallery forests, very steep slopes

Any sanctuary needs buffer zones & its been always observed that much of the important biodiversity is actually recorded outside sanctuary limits. This is because, boundaries are human made & animals do not understand such virtual lines. Biodiversity have different criteria to establish itself.

These isolated patches are rich in biodiversity, so must be identified & protected from destruction. But they must be connected by corridors to conserve the genetic diversity & for future of species. Areas outside these patches are degraded that must be protected & restored.



Dajipur Forest & Pratapgad slopes

Disturbed Areas : Mostly private lands



Areas near Jawali & Koyna backwater

Disturbed areas are seen where there is influence of humans & their settlements,

- Areas around settlements (as seen in left photo, the area around village is barren compared to surrounding)
- Areas under shifting cultivation
- Areas under infrastructure development like road, dam, houses

Western Ghats being a very fragile ecosystem, any area can be a potential sanctuary today or tomorrow. The disturbed areas though look barren have a different set of biodiversity. These species are hardy, forming a combination of habitat generalist & specialist species. But if treated properly, such areas have great potential to return to original healthy state.



Result of shifting cultivation

SAHYADRI 'WESTERN GHATS' – PEOPLE

Local people in hills : History



Living with Nature

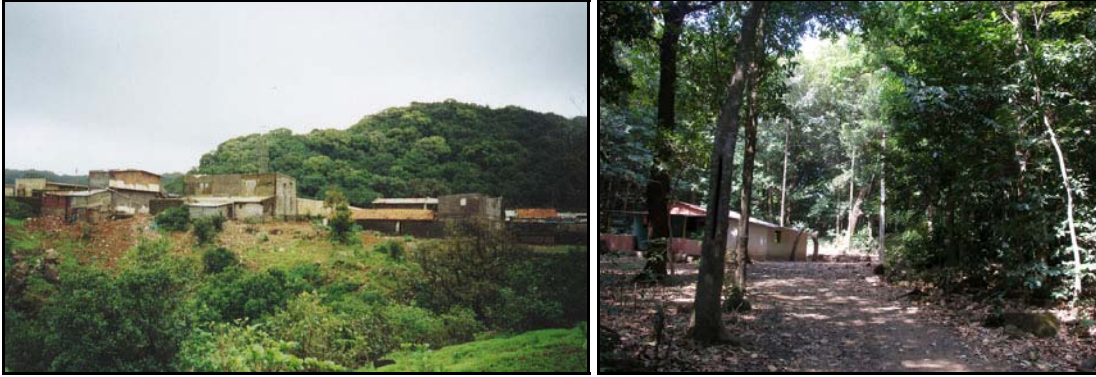
- People in hills have been living here for many years but number is not high
- They include tribal & non-tribal
- These areas were remote & away from any conventional development
- Traditional practices like grazing, shifting cultivation have resulted in degradation of ecosystem
- Still the impact was comparatively lesser due to limited needs & less money in hand
- Hunting of wildlife for food / fun was a very common practice
- Dams, roads have resettled people to other areas and those who preferred to move on slopes in the same area started shifting cultivation on densely forested slopes, which caused further more degradation of forests.

Humans can not survive without modifying the Nature. Wood cutting continues to be very usual, for house, as fuel wood, for money, for agriculture.



An old growth tree chopped down in a sacred grove !

Local people in hills : Present



Houses – Bhimashankar & Temple in Sacred Grove - Mulshi

- Profile of hill dwellers is changing. Aspiration of modern lifestyle is increasing.
- Tribal are into farming while farmers are moving to cities.
- Current generations of people are not attached to landscape & biodiversity.
- Their way of living, farming, food habits have changed reflecting in houses, farming.
- Availability of modern techniques has boosted development in hills.
- Hunting of wildlife continues & human-wildlife conflicts are increasing.

Impacts of changing lifestyle of 'Hill dwellers'

- Need of permanent vehicular roads
- Increase in population, so more houses, more water, more fuel, more food
- Demand for modern amenities increases footprint on land

Changes in lifestyle with modern technology will pose threat to ecosystems. Countryside areas are turning to towns. These towns are importing the good & the bad of the cities blindly.



Even a small population of about 150 people has their footprint on more than 2000 acres.

Dasve, Warasgao.

Changes in Land use pattern

Villagers or Urbanites...

In many parts, local people no more continue to live their ancient lifestyle. Almost one person of every house works in city. Their children are not interested in continuing earlier lifestyle of farmer / tribal / shepherd. So many times land is sold to some urbanites for farm house. Only the villages in very remote areas cultivate the lands regularly.



Village house to Concrete palace

- Drastic change in land use pattern from slopes, agriculture to developmental projects
- Change in ownership from local poor villagers to rich urbanites. So the villagers are actually the city living people now.
- This change of ownership is uncontrolled.

Scale & type of development matters.



Construction in Hills - Lavasa

Urban people in Hills



Uncontrolled infrastructure development – individual owners

Changing trends of ownership & lifestyle

- Since past few years, people have started selling their lands & either work as labour on the land or migrate to nearby town / city in search of work & better life.
- The new owners i.e. city people purchase lands from these farmers & convert it into a farm house / resort with city amenities & city plants. Many times they convert the land into horticulture plantations (Mango mostly), or introduce non-natives for greening or try out innovative plants like tea, coffee, etc. But for all these activities original diversity is removed blindly.

Even though this area lies outside ESA, activities happening on such lands will affect the processes & functioning of ecosystem in ESA.



Urban people in hills : Urban lifestyle

Increasingly, the area is now being occupied by urbanites (individuals / developers) in Western Ghats with land holdings ranging from ½ acres to 1000 + acres. These people are politicians, developers, common man, corporate, industries.



No control over type & scale of development by anyone.

City lifestyle in hills

- City people need all the modern amenities even in countryside houses
- Good wide roads, water, electricity... all needed for the weekend home.
- Infrastructure is built with inert materials like cement, steel, bricks.
- Palace like houses are full with AC, TV, marble, like luxuries.
- So, the weekend home becomes more lavish and energy consuming than a city home.

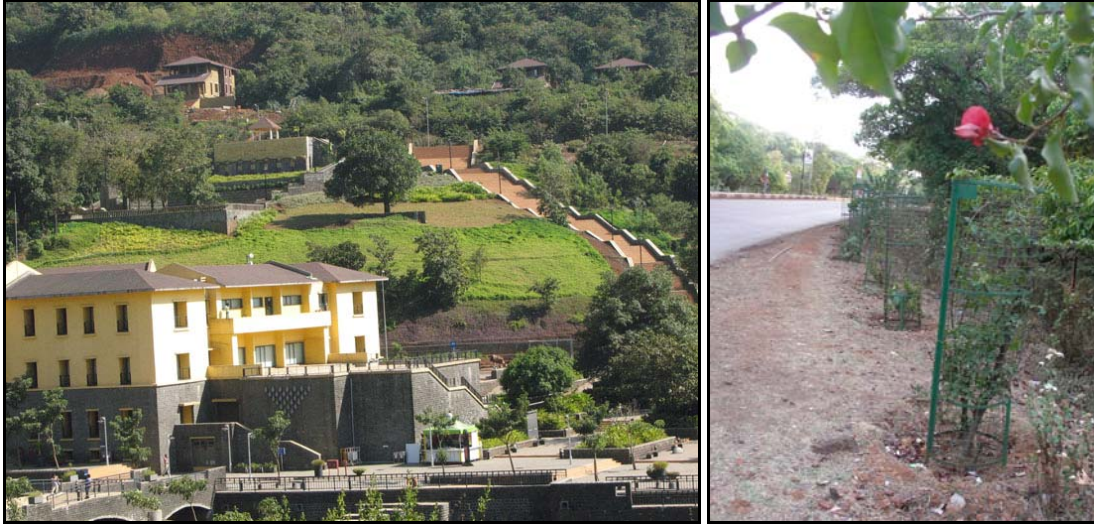
With changing trend maximum village people sell their lands to city dwellers, who then 'develop' them in the way that is not at all tune with nature. After selling lands, locals either move to cities or work on the land as labourer or care-takers.



City elements

Urban people in hills : Urban gardens

Along with urban amenities, elements in City gardens are incorporated in Hill garden.



Beautification at Hill stations, extensive lawns & City flowers

- Gardens with excessive resource consumption & non-native plants
- Large lawns & flower beds need daily watering, fertilisers & pesticides
- Gardens are overlaid with pathways, paving, steps, etc consuming lot of cement.
- Many times invasive plant varieties are used that are dangerous to local ecosystems
- There are no guidelines or norms for garden development in sensitive hilly areas.

Such flowery gardens look alien in natural setting.



Lawns & flowering beds

Mechanism of Change

Hills to Developed destinations

Depending on the ownership, treatment to the land & its impact on ecosystems vary.



Development not in tune with Nature - Matheran

- Individual owners – Farm house, Resort, Farm lands, Horticulture
- Land developers – Farm house scheme, Resort, Townships
- Industries – IT park, Processing units, Floriculture etc.
- Government – Hill stations, Hill towns, Hill city

Today, the decision on use of land & resources entirely lies in hands of Politicians, Developers & Rich urbanites. Urban people who want to stay away from urban lifestyle find refuge in farm house schemes or resorts & buy land to be developed again with urban character.



NA plots of size ranging from 3000 sq ft to 1 acre are available in hills now.

Hills : Tourism



It is the Forest & Biodiversity that have maintained the aesthetics & climate of tourist destinations.

Western Ghats, beautiful landscape and congenial climate in Monsoon, Winter & even in summers have always been attracting a lot of tourists.

- It started with British government when popular hill stations like Mahabaleshwar, Matheran were developed as Summer attraction.
- Forts in Sahyadri were favourite amongst adventurous groups for trekking and continue to be so.
- When cities started becoming overcrowded & polluted, people needed a weekend destination & creative developers offered it with Farm-house scheme & resorts.

And since past 2 decades, Western Ghats are dotted with farm houses, resorts, attracting elite city people. City dwellers need a neat & clean look & all city amenities anywhere they travel. This started the massive development of hills to modify & conquer nature.

At the same time, when city people were attracted to hills, the village people wanted city life. So they started selling land, migrating to cities.

Even though the Tourism industry is increasing, there is absence of proper Policies, No studies for carrying capacity, Control over number of people, so NO control over type & scale of development.

Ideally, tourism in hills should have,

- Control over number of tourists / year
- Basic comfortable facilities & not the over consumptive urban lifestyle pattern.
- Conservation of Ecosystems should be the most primary aim.
- Positive participation of local people.

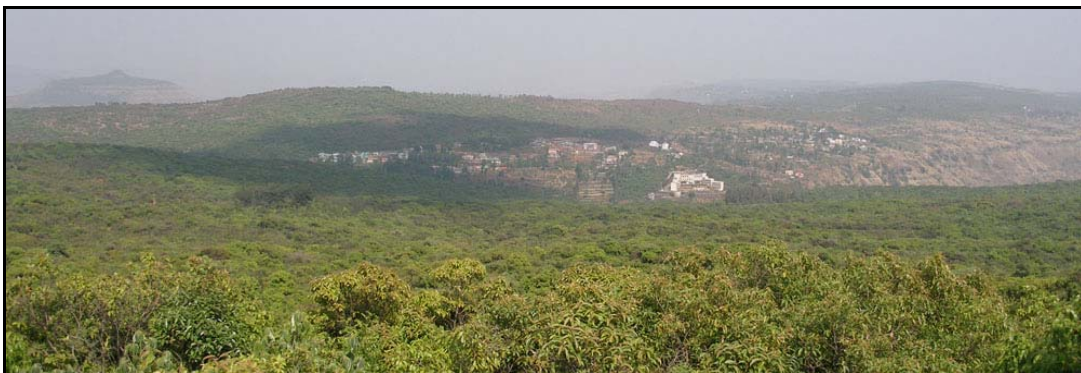


Negligence – waste created by tourists in Natural areas.

With tourists, what invariably comes is,

- solid wastes like Plastic, rappers, thermacol, and problems of sewage treatment
- demand for more amenities & facilities like gardens, malls, water parks, hotels
- requirement of food, water, services increases
- area with forests, biodiversity decreases
- illegal development increases
- pressure over local governance & infrastructure

It's the urbanites who have demanded large scale infrastructure development in Sahyadri. Be it a hill station or a farm house or a resort or a township. Impacts on nature are never considered at any scale.



Over crowded Mahabaleshwar.

The attraction of serene landscapes, forests, calm surroundings, pleasant climate throughout the year, and availability of water has boosted the development in hills.

Due to wrong trends in development, Sahyadri is on way to loose its character as a Destination with dense forests, rugged topography & beautiful monsoon landscapes. Lonawala is best example for such unplanned & unpleasant development.

SAHYADRI 'WESTERN GHATS' – COMMERCIAL DEVELOPMENT

Development : Reasons

Be it hill station, township or farm house scheme, impact of development on Ecosystem is irreversible in WG.

- Primary reason for large scale development is opportunity for income generation through,
 - Farm houses
 - Tourism facilities
 - Services
- Roads / Rails joining coastal areas with town centres on Deccan plateau
- Area receiving high rains so important as Dam locations
- Store of many resources like minerals, wood, soil, etc.



Forest & river side fertile land under backwater & cutting of vegetation

Roads – towards 'Development' or 'Destruction' – there has to be a control over number, width & length of roads in hills. A narrow road for a remote village is necessary but wide roads involving tremendous cut – fill operations destroy vegetation, habitats, soil & hydrology.



Ghat roads – Irreversible impacts on soil, water, biodiversity.

Development : Type & Scale

- Large amount of farm house & resort projects happening all over Western Ghats on land holdings ranging from 10 acres to 500 acres. This is apart from huge projects like Amby Valley & Lavasa.
- Developmental activities in these projects are roads, terracing, vegetation cutting, construction & landscaping. All proving dangerous to biodiversity.

Such impacts cannot be measured or compensated by any amount of greening activities.



Area inundated under backwater & cutting of hills for Rails

Since decades, Western ghats have been affected by various developmental activities like,

- Dams – Backwater & Canals
- Roads, Building construction

Any infrastructure development activity destroys existing Biodiversity in Ghats apart from cutting of hills, damage to soil profiles & hydrology.



Stone quarry & Roads cutting through Sacred Groves - Mulshi.

Development : Impacts on Nature

Impacts of development (Roads, Construction of built structures) can be observed at various levels.

Landscape:

- Hill cutting & Physical changes in slope profile due to roads, terracing, construction, etc
- Submergence of fertile valleys & forests under reservoirs
- Modification in hydrological pattern
- Terracing causing removal of vegetation & soil
- Changes in hill topography
- Dumping of material like stones, sand, bricks
- Quarrying for stone, murum , soil for various construction purposes

Hydrology:

- Canalisation, modifications, removal of boulders, loss of riparian vegetation, habitats pose threat to stream ecosystem & its function
- Changes in natural streams & hyporheic zones
- Loss of special biodiversity like streamside vegetation & aquatic life
- Destruction of natural spring & oozes
- Alteration of sub-surface flows
- Damage to ground water table
- Introduction of waste water to waterbodies
- Increase in runoff due to hard paved surfaces & reduction in water percolation

Soil:

- Increase in soil erosion
- Resource is wasted during construction activity

Vegetation:

- Major loss to unique floral species
- Introduction of non-natives for plantation
- Underground tubers are removed

Fauna:

- Direct impact on small & ground dwelling fauna
- Destruction of migratory route & corridors

- Changes in food habits
- Man – wildlife conflict increases

Allied (or indirect) activities required as support structure during development also cause a lot of damage to Ecosystems. These are,

- Establishment of labour colony
 - Temporary settlements on land
 - Problems of waste disposal, both solid & liquid
 - Increase in vegetation cutting for fuel wood
 - Increase in wildlife hunting
- Temporary access roads
- Quarry & stone crusher
 - Disturbance to slopes & streams
 - Temporary material storage cause levelling of large areas
 - Stone dust causes air, soil & water pollution
 - Ill effect of accumulation of stone dust on vegetation

Even the clean power like Wind mill, puts lot of pressure on local special biodiversity during construction & operation. Main effect on biodiversity is due to uncontrolled movement, kaccha roads, vehicles, large dumping areas for construction materials.



Wind mills – Green Energy ? Threat to local biodiversity & features.

SAHYADRI 'WESTERN GHATS' – ECO-PERSPECTIVE

Conservation : Ideal Models for Eco-development

Knowing that the Western Ghats as Ecologically sensitive landscape & Biodiversity hotspot, certain activities or projects should not be permitted. Also, considering ownership of land, Conservation Guidelines must be developed. Following categories are identified for such guidelines,

- Village level
- Farm owner
- Farm house developer
- Resort owner
- Township

General guidelines for Conservation of Western Ghats:

- Entire WG can be treated on lines of 'Aforestation zone'.
- No permission for townships / hill cities / hill towns development.
- **Zoning of entire range of WGs** for -
 - **No intervention (ESA):** Existing NP, Sanctuaries, Reserved forests & their buffers, Sacred Groves, Inaccessible patches
 - **Buffer for Eco-restoration:** All streams & streamside vegetation buffer of 10 m on either sides, steep slopes (1:5 & steeper), Mountain tops.
 - **Residential:** Existing Gaothan / wadi with, surrounding buffer of 200 m, traditional areas of cultivation on level land, moderate slopes with scrub vegetation (1:10 to 1:15).
- **Land sale permissions as per zones:** Sale should be permitted only in Public zone.
- **NA permission:** No land in Western Ghats to be permitted as NA.
- **FSI:** Agriculture land FSI ie 4 % to be applied to all type of built structures.
- **Access roads:** Area under roads should not be more than 5 %.
- **Plantation guidelines:** **Only Native species** to be used
- No vegetation cutting permitted unless planted for specific purposes like Timber.
- Mountain tops must be protected for ecological benefits.
- Fencing for lands should not be a stone or brick wall. Fencing of live hedge (tree-shrub), thorn or barbed wire should be preferred.

Conservation Guidelines : Village Level

Village people are dependent on land for survival. Considering this, entire village land can be planned for Sustainable Livelihood.

- **Zoning of village land into,**
 - Gaothan with surrounding buffer of 200 m for future development
 - Cultivable land: Level land & existing fields considering water sources
 - Support area: Land surrounding Gaothan with slopes ranging from 1:10 to 1:15 @ 2 acres per family for Tree based farming, fuel wood & fodder supply.
 - Conservation area: Area with slopes between 1:5 to 1:10 to be conserved as it is with existing vegetation & features. No grazing / cutting / intervention allowed in this zone.
- No vegetation cutting permitted unless planted for specific purposes like Timber / fuel wood.
- Streams, streamside buffers & their source regions to be protected for Water management.
- No cultivation on slopes.

Ideal Land use in Hills – Valley bottoms for cultivation & settlement, Slopes for dense vegetation. Such Landuse will ensure availability of healthy Natural resources like fertile soil, water for present & future. And it will safe guard interest of non-human beings.



Existing villages in Koyna catchment & Warandh Ghat area.

Conservation Guidelines : Farm house developer

- Restriction on acres under such scheme as maximum allowed to be 100 acres.
- Applicable to project area ranging from 10 acres to maximum of 50 acres.
- **Zoning of entire land** based on slope categories & use,
 - Conservation: 30 % of total land should be common with natural vegetation regeneration. This can include steep slopes (1:5 & steeper), streams & their 10 m buffers, existing dense vegetation patches & mountain tops.
 - Infrastructure: 5 % under access roads.
 - Amenity space: 5 % for support structures & services
 - Plot area: 60 % can be plotted & sold with permission on layout from concerned authority & restriction on individual plot development.
- Plot area should be ½ acre (2000 sq m) minimum with,
 - 4 % FSI for house & other structures on slopes 1:15
 - 10 % for formal garden on slopes 1:15
 - 80 % for local ecosystem conservation under plantations @ 200 trees per acre
- Plantation of Native & special species of Western Ghats should be enforced.
- No cutting of slopes for any infrastructure.
- Structure to be built using local materials in radius of 10 km or using less processed materials.
- Plot boundaries to be marked with live hedges. No permanent compound to be installed.

Urbanites are not dependent upon farm house land for their bread n butter. So, responsibility of restoring & conserving natural capital on the land lies with these educated owners.



House using Bamboo & No lawn Landscaping with Native Plants !

Conservation Guidelines : Resorts

Well planned resorts with Conservation approach can reduce pressure of tourism on existing hill stations, National Parks & Sanctuaries.

- Land location should not be adjacent to existing PAs or ESAs.
- Total land owned by Resort should be minimum 5 acres to maximum of 20 acres.
- **Zoning of entire land** based on slope categories & use,
 - Conservation: 60 % of total land should be kept open with natural vegetation regeneration. This can include steep slopes (1:5 & steeper), streams & their 10 m buffers, existing dense vegetation patches.
 - Infrastructure: Less than 30 % under access roads, resort structures, amenity spaces, etc. on slopes around 1:15. No cutting on slopes for any infrastructure.
 - Formal garden: 10 % based on Eco-landscaping principles.
- Plantation of Native & special species of Western Ghats in conservation zone @ 200 trees per acre. Activities for Eco-restoration should be carried out.
- Structures to be built using local materials in radius of 10 km or using less processed natural materials.
- Amenities or Recreational facilities should not include energy or resource consumptive activities like water parks, city games, etc.

Urbanites are the visitors in resorts. The resorts should have facilities for Nature interpretation for visitors & follow resource & energy friendly techniques in Design & Operation.



Wilderness! A resort that camouflages with the vegetation & protects existing vegetation have very less foot print on ground. This resort manages to protect hundreds of acres of pristine forest around.

Ideal example of Eco-tourism involving local people & serving local food.

Conservation Guidelines : Private Hill Stations

A Hill Station is necessarily in the hills & its most striking feature is Natural beauty. Community based tourism is ideal example of strengthening village economy, conserving nature & providing opportunities for City people to be with Nature & learn about biodiversity & its conservation.

With following guidelines, an area can accommodate tourists, conserve local biodiversity & provide employment opportunities to local people.

- Privately owned land should be in range of 50 to 100 acres.
- The land owner & village people together should workout a plan for hill station development.
- **Norms for infrastructure development** should be as follows on scale of village,
 - Conservation: 50 % of total village land should be kept open with natural vegetation regeneration. This should include steep slopes (1:5 & steeper), streams & their 10 m buffers, existing dense vegetation patches, Mountain tops.
 - Home stays at village houses should be planned after developing minimum facilities & training of village people for providing various services.
 - A resort on privately owned land with similar guidelines as in Resort category.

Such models will improve Ecological & Economical conditions in hill villages. Decentralized tourist attractions will also reduce pressure on existing Hill stations or Sanctuaries & provide multiple choices to tourists. It will also provide employment opportunities to local villagers & protect village forests for tourism.



Village trail to understand village lifestyle. Comfortable staying facilities. Local villagers as guides.

SAHYADRI 'WESTERN GHATS' – LEGAL FRAMEWORK

Comment on legal framework for protection of environment and ecosystems:

There are many laws in place to prevent hunting and poaching in the Western Ghats along with protection of protected areas etc. and environment.

Some of them are:

1. Indian Forest Act, 1927
2. Wildlife Protection Act, 1972
3. Environment Protection Act, 1986
4. Biodiversity Conservation Act, 2002.

1. Indian Forest Act, 1927:

The Indian Forest Act introduced the concept of 'reserved forests' for the first time. This gave the government the right to charge levy on timber and all other forest produce.

Suggestion for Western Ghats:

Power to declare eco-sensitive areas within the Western Ghats must rest with the Western Ghats authority.

2. Wildlife Protection Act, 1972:

The main objective behind the enactment of Wildlife Protection act of 1972 was to control poaching and illegal trading of wildlife in the country. This act also provides for the protection of different species of flora and fauna.

Suggestion for Western Ghats:

Some areas in Western Ghats could be developed as corridor patches, to improve the ecological value of a particular area. People can be given permit for entering into areas for purposes like photography, scientific research or eco-tourism to have an effective management control. Also no weapon should be entertained into forest area or a sanctuary.

3. Environment Protection Act, 1986:

The main objective of the Environment Protection Act is to provide the protection and improvement of environment (which includes water, air, land, human being, other living creatures, plants, and micro-organism). There is a constitutional provision also for the

environment protection which specifies that the State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country and every citizen shall protect the environment.

Suggestion for Western Ghats:

The EPA defines 'sensitive areas' as an area whose ecological balance is prone to be easily disturbed. These sites in the Western Ghats are needed to be selected and categorized to make effective set of norms. These could be categorized as disturbed, protected, semi protected land and then strategies to improve each area need to be finalised.

4. Biodiversity Conservation Act, 2002.

The main objective of the act was that the Central Government shall develop national strategies, plans, programmes for the conservation and promotion of sustainable use of biological diversity including measures for identification and monitoring of areas rich in biological resources, conservation of biological resources and public education to increase awareness with respect to biodiversity.

Suggestion for Western Ghats:

The threatened endemic and rare species or those ESA's that have a limited range of biodiversity must be protected which would be one of the major activities of the Western Ghats Authority.

Apart from the above mentioned laws, it is necessary to identify Eco-sensitive areas, Protected areas, ESA's around PA's , Hill stations, Hill stations as ESA's, which can be further treated or categorized under reserved forests, closed canopy forests, water bodies, species based ESA's, specialized ecosystems and can be treated accordingly.

Legal framework policies

1. Maharashtra Regional and Town Planning Act,1966:

The Government of Maharashtra has created a schedule for developing 'Special Townships' in the area under Pune regional Plan. Any suitable area preferably vacant having sufficiently wide means of access, not less than 18 m wide, can be identified for the purpose of development of a Special township.

WG: Areas that contain high biological values and are ecologically fragile are not suitable for township development irrespective of availability of access. Thus most of the Western Ghats are not suitable for developing such townships.

The area under the special township shall not be less than 400 ha, and shall not include the area under forest, water bodies, like river, creek canal, and reservoirs. Heritage precincts, proposed industrial zone, gaothan areas or congested areas, truck terminus specially earmarked on regional plan, wildlife corridors and biosphere reserves also should not be a part of this land.

WG: Any land having a significant tree cover and even degraded patch capable of being restored to a natural forest ecosystem ought to be treated as forest and township development in such areas must be banned. E.g. Lavasa and Sahara city, developed in the catchment areas rivers, had maximum natural areas like forests, water bodies, river etc. So the act needs to be checked & reformed for WGs.

2. Planning on hill tops and hill slopes:

The development on hill tops or slopes should be 50 % of their gross plot area and remaining 50 % shall be thickly developed for tree plantation.

WG: Many times the act is not observed strictly. Also the plantations should be of NATIVE PLANTS. The proposed plantations should not disturb the ecology of the site and environmental clearances should be obtained prior starting the project.

3. Agricultural and Non-agricultural lands:

In order to control the development, minimal agricultural plots should be converted to non-agricultural plots (NA), thereby reducing the benefit of increased built-up in these areas also reducing the ecological footprint.

4. Hill station policy:

The Special Hill Station Regulations, 1996,

This policy states that,

2. The area under the development complex shall not be less than 400 hectares ~~and not more than about 2000 hectares.~~ (deletion vide Notification No. TPS 1896/1231/CR-123A/96/UD-13 dated 30 May 2001)

There should be restriction on maximum area.

20. The area declared as Hill Station shall not require N.A. Permission

This will increase footprint of development.

N.A. permission should not be given to lands in WG

22.. The Development contemplated shall in no case involve the cutting of mountains.

Cutting of mountains is seen everywhere in all privately owned areas.



23. The trees shall be as far as possible be of fruit bearing type which normally grow in the surrounding area and which suits the local climate. These trees shall be planted in consultation with nearest forest officer...

Plants must be strictly native to the region.

Appendix A

It allows only G + 1 structures for residential areas. And max ground coverage 1/5.

This is never followed, especially in township projects they even build G + 4 structures.

In case of any resort or township development on hill slopes, 33% of the total plot area should be reserved as open space excluding the forest area.

WG: The open space should be increased to at least 50 % of total area under consideration for development. This area should be totally used for conservation & enhancement of biodiversity.

The area under residential development shall provide plots of the minimum size of 500 sq.mts.

WG: Minimum plot area needs to be increased to 1 acre so that foot print of development is reduced. Guidelines for Plot development similar to that in section 'Farm house developer'

Suggestions for Hill station development:**a. Recreational Open spaces in Residential and commercial complexes:**

Recreational open places or complexes should accommodate just the basic activities like staying, dining, playing etc. and should not cater for luxuries like the golf course, water parks, etc. which are spread over larger areas & consume lot of material & energy.

Parks, gardens along with gazebos made out of wood or bamboo can add to aesthetics and the material will have less impact as both are degradable. Nature walks, camp fire sites can be designated in the plot instead of disturbing the entire surrounding.

All these spaces should be connected by a pathway and not a tar road.

b. Amenity spaces:

Most of the amenity spaces should be constructed of locally available material and should have outdoor connectivity and must be easily accessible and be located in the plot area itself. These spaces should be low rise structures and easily degradable. These spaces may include a gymnasium, gaming area, barbeque, and seating spaces along with a community hall etc.

All these spaces should be connected by a pathway and not a tar road.

c. Shopping:

The shopping areas must not be a closed building consuming high amount of energy, but should be a ground storey structure constructed in local material with self sufficient water and garbage treatment areas. Articles from such shops shall not be sold in plastic bags, but instead in paper, fabric or jute bags, thus reducing on plastics and its disposal problems.

Planning:

Orienting road and infrastructure development to prevent damage to surrounding forests during construction, retaining integrity of the local hydrology of stream courses and waterfalls, preventing landslides and damage to areas which have unique floral and faunal elements located in even small restricted ecosystems types must become a part of future road development in the Ghats.

Environmental Impact Assessments (EIA) for Environmental Clearances:

EIA (Environmental Impact Assessment) was formulated to incorporate necessary environmental safety measures at the planning stage to reduce the impact of a project on the surrounding.

EIA process also helps to understand whether the project is going to have a positive or a negative impact thereby, helps in suggesting the mitigation measures.

1. Township and Area development projects:

The township and area development projects covering an area of less than 50 hectares are exempted from the EIA process. As against projects covering an area of more than 50 hectares or having built-up of more than 1,50,000 sq.m. require state clearance.

Recommendations for WG: Being a bio-diversity hotspot and having a fragile eco-system, all the upcoming townships or developmental projects should undergo the EIA process irrespective of the plot or the built-up area.

For practical purposes, projects covering minimum area of 20 acres must require clearance from concerned authority.

This would be also applicable to any resorts, commercial developmental projects or any construction activity, power projects including 'Wind mills'.

2. EIA process:

The EIA clearance process is based on the Leopold matrix which is accepted world wide as an EIA methodology for predicting the impact of the activity. The output of the matrix is based on personal judgement, which varies from person to person. As a result, the impact of the activity would be different for each person.

SEIAA (State Level Environment Impact Assessment Authority) is an independent body which scrutinize the project and its related documents for the environmental clearance. It may also inspect sites during the initial stages of the EIA process.

Recommendations for WG: A member from the EIA clearance team or SEIAA should be involved along with the project co-ordinator for preparation of the matrix. The judgement of the EIA team member would make the process more transparent and fair outcome would be possible.

3. Assessment Committee:

In order to get a clearance for a project, the EIA clearance is required from either the State or the Central Government depending upon the location of the SEIAA. In absence of the State committee, the clearance is gained from the Central Government. This makes the process time consuming and as a result, if the requisite letter is not received, the construction activity is resumed without clearance.

Recommendations for WG: If a separate appraisal committee is prepared for Western Ghats, clearance of the projects would be faster and easy task and in due time, no unwanted activity would be carried out.

4. Public Hearing:

Public consultation process can be carried out in two ways, either by direct hearing on site or through indirect modes like display on websites, stakeholders etc and should be completed within 45 days.

Recommendations for WG: The Public hearing process should preferably be a direct discussion with the people, as other means of communication will not be effective and might mislead the people.

5. Developmental Projects:

Recommendations for WG: In all type of the projects, where thick plantations on the plots are mandatory, emphasis is given on the tree number (removal or plantation) & not on total biodiversity (including rare & special diversity like herbs, orchids).

In order to protect the varied flora, along with the number of plantations, type of species to enhance the eco-system must be specified. This will develop new bio-diversity or help rejuvenate the existing species.

6. Ecological footprint:

Recommendations for WG: Ecological footprint of the activity as a whole must be measured before starting of the project.

E.g. In case of LAVASA, they are developing Dasve as first phase but their labour colony, quarry are located in next micro-catchment (Village Bhoini) having greater impact on

surrounding. A project will always have its spill-over in neighbouring areas, which must be measured before permission.

7. Environment Management Plans:

Recommendations for WG: Each place or each activity should have its own Environment Management Plan (EMP), along with Biodiversity Management Plan (BMP) for the activities like quarrying, use of materials, services and infrastructure, which should also include eco-restoration plan.

These will help assess the impact of the activity and in turn suggest mitigation measures for the same along with preservation of the bio-diversity.

Conclusion

Legal framework, be hill station policy or EIA or some environmental sanction, is not at all enough to protect Western Ghats as ecosystem ! There are policies and guidelines set up by government but are rarely followed. And even though those are followed loss to the ecosystem is inevitable.

- The developmental activities be at any scale (roads, establishments, buildings, quarry, etc) destroy existing landscape (including slopes, streams, plateaus, valley bottoms, fertile rice fields) & biodiversity, habitats, soil structure, hydrology, when done in conventional way & on large scale.
- Compensatory measures like planting thousands trees per ha is not enough for the loss caused. Because the biodiversity loss includes trees, shrubs, climbers, herbs, grasses, orchids, birds, butterflies, mammals, insects, reptiles, and 'n' no of associated species. Many rare, uncommon & endemic species are lost. So, plantation can not compensate for this loss.
- Declaring WG areas & catchments of major dams as hill station zone is again a contradictory policy. Government already has a 'catchment area treatment' guideline for dams to prevent siltation, which suggests conservation of such areas.
- NOCs & Clearance certificates never look into such finer details of site specific negative impacts. Hence, all such certificates are inadequate.
- Environmental clearance should be necessary for all types project irrespective of area.
- Large scale projects like townships & future cities or SEZ should not be allowed at all in Western Ghats.

Ideally Western Ghats should be totally protected for natural systems and non human beings, for our own sustainable future !



Forests – The climax ecosystem in Western Ghats is necessary for the survival of Humans !